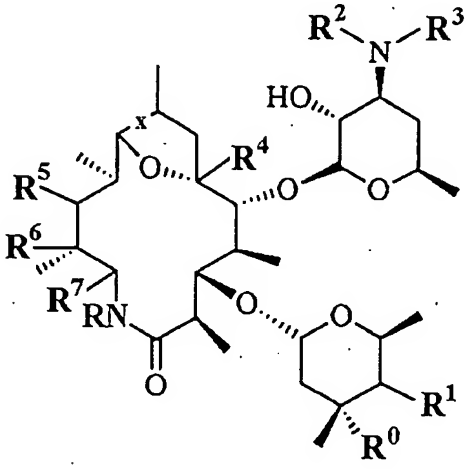
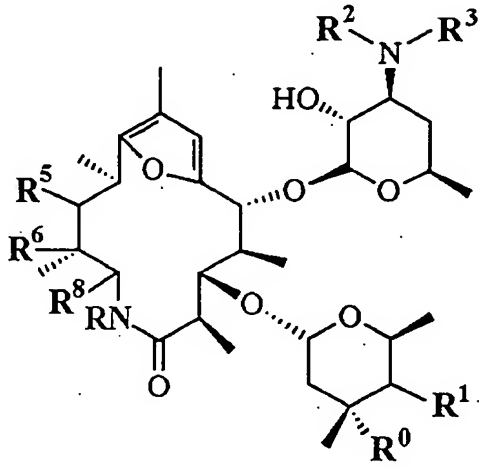
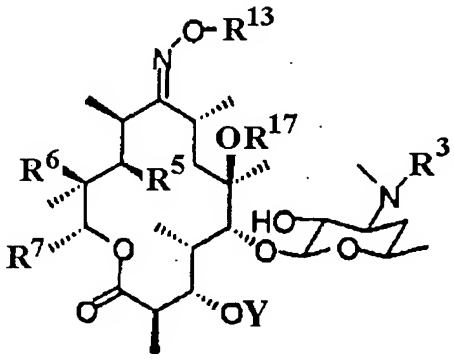
ABSTRACT

The present invention provides novel macrolide compounds of the formulas







and

wherein:

R is hydrogen, substituted C_1-C_{10} alkyl, unsubstituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10} alkynyl, substituted aryl, unsubstituted aryl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, or unsubstituted alkynylaryl;

R^0 is hydroxyl or methoxy;

R^1 is selected from the group consisting of hydrogen, hydroxyl, halide, NH_2, OR^9, OCR^9, $OCNR^{10}R^{11}$, NCR^9, and $NCNR^{10}R^{11}$ where R^9 is substituted C_1-C_{10} alkyl, unsubstituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl,

substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10} alkynyl, substituted aryl, unsubstituted aryl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, or unsubstituted alkynylaryl, and R^{10} and R^{11} are each independently hydrogen, substituted C_1-C_{10} alkyl, unsubstituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10} alkynyl, substituted aryl, unsubstituted aryl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, or unsubstituted alkynylaryl;

R^2 and R^3 are each independently selected from the group consisting of hydrogen, substituted C_1-C_{10} alkyl, unsubstituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10} alkynyl, substituted aryl, unsubstituted aryl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, or unsubstituted alkynylaryl, or R^2 and R^3 together form a cycloalkyl or an aryl moiety;

R^4 is hydrogen or methyl;

R^5 is hydroxyl or oxo;

R^6 is hydrogen, hydroxyl, or OR^{12} where R^{12} is substituted C_1-C_{10} alkyl, unsubstituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, or unsubstituted C_2-C_{10} alkynyl;

R^7 is methyl, unsubstituted C_3-C_{10} alkyl, substituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10} alkynyl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, or unsubstituted alkynylaryl;

R^8 is unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10} alkynyl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, or unsubstituted alkynylaryl;

R^{13} is hydrogen, unsubstituted C_1-C_{10} alkyl, substituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10}

alkynyl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, or unsubstituted alkynylaryl;

R^{17} is hydrogen or methyl;

x is a single or a double bond; and,

Y is hydrogen, substituted C_1-C_{10} alkyl, unsubstituted C_1-C_{10} alkyl, substituted C_2-C_{10} alkenyl, unsubstituted C_2-C_{10} alkenyl, substituted C_2-C_{10} alkynyl, unsubstituted C_2-C_{10} alkynyl, substituted aryl, unsubstituted aryl, substituted alkylaryl, unsubstituted alkylaryl, substituted alkenylaryl, unsubstituted alkenylaryl, substituted alkynylaryl, unsubstituted alkynylaryl, unsubstituted cladinose, or substituted cladinose.